

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. **(Currently Amended)** A method for managing a queue of packets using queue sets data structures, the method comprising:

 ~~allocating~~ transforming a plurality of consecutive packets into a queue set data structure
 based on a target queue set data structure size, the plurality of consecutive packets
 being associated with the queue; and

 performing a queuing operation on the queue set data structure, the queuing operation
 treating the queue set data structure as a single entity, such that the queuing
 operation is performed on each of the plurality of consecutive packets in the
 queue set data structure.

2. **(Currently Amended)** The method of claim 1, wherein ~~allocating~~ transforming the plurality
of consecutive packets into the queue set data structure further comprises:

 determining a size of each of the plurality of consecutive packets;

 allocating the plurality of consecutive packets to the queue set data structure based on a
 target queue set data structure size according to the consecutive packet sizes, the
 target queue set data structure size being approximate to a largest supported
 packet length of the queue.

3. **(Currently Amended)** The method of claim 1, further comprising:

determining a queue service interval for performing queuing operations on queue sets

data structures based upon a desired data rate and a target queue set data structure
size;

wherein performing the queuing operation on the queue set data structure related to the
queue further comprises:

performing a first queuing operation on a first queue set data structure
related to the queue,

delaying a period of time equivalent to the queue service interval, and

performing a subsequent queuing operation on a second queue set data
structure related to the queue.

4. **(Currently Amended)** The method of claim 3, wherein determining the queue service
interval further comprises:

determining an average queue set data structure size for the queue sets data structures
over a period of time; and

adjusting the queue service interval based upon a difference between the average queue
set data structure size and the target queue set data structure size.

5. **(Currently Amended)** The method of claim 1, wherein performing the queuing operation
further comprises:

shaping traffic flow of the queue set data structure at a rate for transmission of data from the queue.

6. **(Original)** The method of claim 1, wherein the queuing operation comprises at least one selected from a group consisting of: enqueue operation and dequeue operation.

7. **(Currently Amended)** The method of claim 1, further comprising:

determining that each queue set data structure of a plurality of consecutive queue sets data structures is the same;

using one representative queue set data structure to represent the plurality of consecutive queue sets data structures, a replication count of the queue set data structure being equivalent to the number of queue sets data structures in the plurality of consecutive queue sets data structures; and

performing a queuing operation on the representative queue set data structure, such that the queuing operation is performed on each of the plurality of consecutive queue sets data structures.

8. **(Currently Amended)** A system for queue management using queue sets data structures, comprising:

a queue set data structure generator configured for ~~allocating~~ transforming a plurality of consecutive packets into a queue set data structure based on a target queue set data structure size, the plurality of consecutive packets being associated with a

queue, the queue set data structure generator further configured for generating a notification when a queue set data structure is ready for scheduling; and a scheduler communicatively coupled to the queue set data structure generator to receive the notification, the scheduler configured for performing a queuing operation on the queue set data structure, the queuing operation treating the queue set data structure as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set data structure.

9. **(Currently Amended)** The system of claim 8, wherein the queue set data structure generator is further configured for:

determining a size of each of the plurality of consecutive packets; and
allocating the plurality of consecutive packets to the queue set data structure based on a target queue set data structure size according to the consecutive packet sizes, the target queue set data structure size being approximate to a largest supported packet length of the queue.

10. **(Currently Amended)** The system of claim 8, wherein the scheduler is further configured for determining a queue service interval for performing queuing operations on queue sets data structures based upon a desired data rate and a target queue set data structure size, performing a first queuing operation on a first queue set data structure related to the queue, delaying a period of time equivalent to the queue service interval, and performing a subsequent queuing operation on a second queue set data structure related to the queue.

11. **(Currently Amended)** The system of claim 10, wherein the scheduler is further configured for
- determining an average queue set data structure size for the queue sets data structures over a period of time, and adjusting the queue service interval based upon a difference between the average queue set data structure size and the target queue set data structure size.
12. **(Currently Amended)** The system of claim 8, wherein the scheduler is further configured for shaping traffic flow of the queue set data structure at a rate for transmission of data from the queue.
13. **(Original)** The system of claim 8, wherein the queuing operation comprises at least one selected from a group consisting of: enqueue operation and dequeue operation.
14. **(Currently Amended)** The system of claim 8, wherein the queue set data structure generator is further configured for determining that each queue set data structure of a plurality of consecutive queue sets data structures is the same, and using one representative queue set data structure to represent the plurality of consecutive queue sets data structures, a replication count of the queue set data structure being equivalent to the number of queue sets data structures in the plurality of consecutive queue sets data structures, and wherein the scheduler is further configured for performing a queuing operation on the representative

queue set data structure, such that the queuing operation is performed on each of the plurality of consecutive queue sets data structures.